

### Abstract of the Disclosure

A method for manufacturing a capacitor bottom electrode by using low k dielectric material as a sacrificial layer is employed to simplify manufacturing steps and prevent electrical shortage phenomenon of bottom electrodes. The method includes steps of: preparing a semiconductor substrate obtained by a predetermined process; forming a sacrificial layer of low k dielectric material on the semiconductor substrate; forming a photoresist pattern on the sacrificial layer; etching the sacrificial layer by using the photoresist pattern as an etching mask, thereby forming an opening; depositing a conductive layer on sides and a bottom face of the opening and a top face of the sacrificial layer; forming a photoresist on the conductive layer, wherein a concave region of the conductive layer is completely filled with the photoresist; planarizing the conductive layer till a top face of the sacrificial layer is exposed; and forming a bottom electrode by removing the sacrificial layer enclosing the bottom electrode by using O<sub>2</sub> plasma and by removing a residual photoresist.